

ABSTRACT OF THE DISCLOSURE

A system and method for performing tissue image analysis and region of interest identification for further processing applications such as laser capture microdissection is provided. The invention provides three-stage processing with flexible state transition that allows image recognition to be performed at an appropriate level of abstraction. The three stages include processing at one or more than one of the pixel, subimage and object levels of processing. Also, the invention provides both an interactive mode and a high-throughput batch mode which employs training files generated automatically.